dr. ir. Rein Houthooft

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Summary

Expertise in fundamental AI/ML research, specifically focusing on deep learning, with a strong publication track record. ML engineering and applied research management experience in building high-throughput online recommendation/personalization systems. See reinhouthooft.github.io for a more complete description.

Current position

Head of AI, Happy Elements . . . . . www.happyelements.com

Areas of specialization

Artificial Intelligence • Machine Learning • Software Engineering • Project Management

Experience

2017-2018 Research Scientist, OpenAI . . . . . www.openai.com
2014-2017 Doctoral Researcher, imec . . . . . www.imec-int.com
2016 Machine Learning Research Intern, OpenAI . . . . . www.openai.com
2012 Software Engineering Intern, Solvace . . . . . www.solvace.com
2011 Combinatorial Optimization Researcher, ArcelorMittal – KU Leuven . . . set.kuleuven.be/codes

Education

2014-2017 Ph.D. in Computer Science Engineering . . . . . Universiteit Gent, Belgium
2016 Visiting Student Researcher . . . . . University of California—Berkeley, USA
2012-2014 M.Sc. in Computer Science Engineering . . . . . Universiteit Gent, Belgium
2008-2012 B.Sc.-M.Sc. in Industrial Sciences . . . . . Associatie KU Leuven, Belgium

Grants, honors & awards

2015 Travel Grant . . . . . Research Foundation – Flanders (FWO)
Doctoral Fellowship . . . . . Research Foundation – Flanders (FWO)
2014 Best Paper Award . . . . . IEEE RNDM Technical Program Committee
2012 Laureate IE-Prizes . . . . . IE-Net Engineering Society

Professional service

2018 Organizer, NeurIPS Deep Reinforcement Learning Workshop
Reviewer, IEEE Transactions on Pattern Analysis and Machine Intelligence
Reviewer, IEEE Transactions on Mobile Computing
2017 Organizer, NIPS Deep Reinforcement Learning Symposium
Teacher, Deep Reinforcement Learning Bootcamp at UC Berkeley
2016 Program Committee Member, NIPS Deep Reinforcement Learning Workshop
Reviewer, Neural Information Processing Systems (NIPS)

Publications

Conference articles

2018 Houthooft, R., Chen, R. Y., Isola, P., Stadie, B. C., Wolski, F., Ho, J., Abbeel, P. (2018). Evolved Policy Gradients. In *Advances in Neural Information Processing Systems (NeurIPS)*, Montreal, Candada

Stadie, B. C., Yang, G., Houthooft, R., Chen, X., Duan, Y., Yuhuai, W., Abbeel, P., Sutskever, I. (2018). Some Considerations on Learning to Explore via Meta-Reinforcement Learning. In *Advances in Neural Information Processing Systems (NeurIPS)*, Montreal, Candada

Plappert, M., Houthooft, R., Dhariwal, P., Sidor, S., Chen, R.Y., Chen, X., Asfour, Y., Abbeel, P., and Andrychowicz, M. (2018). Parameter Space Noise for Exploration. *International Conference on Learning Representations (ICLR)*.

2017 Tang, H., Houthooft, R., Foote, D., Stooke, A., Chen, X., Duan, Y., Schulman, J., De Turck, F., and Abbeel, P. (2017). #Exploration: A study of count-based exploration for deep reinforcement learning. In *Advances in Neural Information Processing Systems (NIPS)*, Long Beach, USA

2016 Houthooft, R., Chen, X., Duan, Y., Schulman, J., De Turck, F., and Abbeel, P. (2016). VIME: Variational information maximizing exploration. In *Advances in Neural Information Processing Systems (NIPS)*, pages 1109–1117, Barcelona, Spain.

Chen, X., Duan, Y., Houthooft, R., Schulman, J., Sutskever, I., and Abbeel, P. (2016). InfoGAN: Interpretable representation learning by information maximizing generative adversarial nets. In *Advances in Neural Information Processing Systems (NIPS)*, pages 2172–2180, Barcelona, Spain.

Duan, Y., Chen, X., Houthooft, R., Schulman, J., and Abbeel, P. (2016). Benchmarking deep reinforcement learning for continuous control. In *Proceedings of the 33rd International Conference on Machine Learning (ICML)*, pages 1329–1338, New York, USA.

Houthooft, R., De Boom, C., Verstichel, S., Ongenae, F., and De Turck, F. (2016). Structured output prediction for semantic perception in autonomous vehicles. In *Proceedings of the 30th AAAI Conference on Artificial Intelligence*, Phoenix, Arizona, USA.

2015 Houthooft, R., Sahhaf, S., Tavernier, W., De Turck, F., Colle, D., and Pickavet, M. (2015). Robust geometric forest routing with tunable load balancing. In *Proceedings of the IEEE Conference on Computer Communications (INFOCOM)*, pages 1382–1390, Hong Kong, P.R. China.

2014 Houthooft, R., Sahhaf, S., Tavernier, W., De Turck, F., Colle, D., and Pickavet, M. (2014). Fault-tolerant greedy forest routing for complex networks. In *Proceedings of the 6th International Workshop on Reliable Networks Design and Modeling (RNDM)*, pages 1–8, Barcelona, Spain.

De Backere, F., Hanssens, B., Heynssens, R., Houthooft, R., Zuliani, A., Verstichel, S., Dhoedt, B., and De Turck, F. (2014). Design of a security mechanism for RESTful Web service communication through mobile clients. In *Proceedings of the IEEE/IFIP Network Operations and Management Symposium (NOMS)*, pages 1–6, Krakow, Poland.

Journal articles

2016 Houthooft, R. and De Turck, F. (2016). Integrated inference and learning of neural factors in structural support vector machines. *Pattern Recognition*, 59:292–301.

2015 Houthooft, R., Ruyssinck, J., van der Herten, J., Stijven, S., Couckuyt, I., Gadeyne, B., Ongenae, F., Colpaert, K., Decruyenaere, J., Dhaene, T., and De Turck, F. (2015). Predictive modelling of survival and length of stay in critically ill patients using sequential organ failure scores. *Artificial Intelligence in Medicine*, 63(3):191 – 207.

Houthooft, R., Sahhaf, S., Tavernier, W., De Turck, F., Colle, D., and Pickavet, M. (2015). Optimizing robustness in geometric routing via embedding redundancy and regeneration. *Networks*, 66(4):320–334.

Patent applications

2016 Houthooft, R., Verstichel, S., Debilde, B., and Foster, C. A controller for a working vehicle. E.U. Patent Application No. 16177346.0 - 1905. U.S. Patent Application No. 15/199,090. Filed 30 June 2016.